

**Data Summary Report
IHSS Group 600-6**



June 2003

ADMIN RECORD

SW-A-004810

Y18

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Enclosure

IHSS Group 600-6 Real and QC Data (compact disc)

ACRONYMS AND ABBREVIATIONS

| | |
|--------|---|
| AL | action level |
| AR | Administrative Record |
| CDPHE | Colorado Department of Public Health and Environment |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| DOE | U.S. Department of Energy |
| DQA | Data Quality Assessment |
| DQO | Data Quality Objective |
| EPA | U.S. Environmental Protection Agency |
| HRR | Historical Release Report |
| IA | Industrial Area |
| IASAP | Industrial Area Sampling and Analysis Plan |
| IHSS | Individual Hazardous Substance Site |
| K-H | Kaiser-Hill Company L.L.C. |
| LCS | Laboratory Control Sample |
| MDL | method detection limit |
| MS/MSD | matrix spike/matrix spike duplicates |
| NA | not applicable |
| ND | non-detect |
| NFAA | No Further Accelerated Action |
| PAC | Potential Area of Concern |
| PARCCS | precision, accuracy, representativeness, completeness, comparability, and sensitivity |
| QC | quality control |
| RCRA | Resource Conservation and Recovery Act |
| RFCA | Rocky Flats Cleanup Agreement |
| RFETS | Rocky Flats Environmental Technology Site |
| RIN | report identification number |
| RPD | representative percent difference |
| SAP | Sampling and Analysis Plan |
| SWD | Soil Water Database |
| ug/kg | microgram per kilogram |
| V&V | verification and validation |
| WRW | Wildlife Refuge Worker |

1.0 INTRODUCTION

This Data Summary Report summarizes characterization activities conducted at Individual Hazardous Substance Site (IHSS) Group 600-6 at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado. Characterization activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001a) and IASAP Addendum #IA-02-01 (DOE 2001b).

IHSS Group 600-6 consists of Potential Area of Concern (PAC) 600-1005, Process Waste Spill – Portal 1. The location of IHSS Group 600-6 (PAC 600-1005) is shown on Figure 1.

2.0 SITE CHARACTERIZATION

Characterization of IHSS Group 600-6 consisted of historical knowledge (DOE 1994) and two sampling locations with specifications as described in IASAP Addendum #IA-02-01 (DOE 2001b). No existing characterization data were identified for this PAC. The sampling specifications for the characterization samples collected are listed in Table 1. The location of these samples are shown on Figure 2. Deviations from the IASAP Addendum consisted of moving the two sampling locations approximately 30 feet to the northeast to adequately cover the revised boundaries of PAC 600-1005. All analytical results are non-detect and a summary of these results is presented in Table 2. Raw data, consisting of real and quality control (QC), are enclosed on a compact disc.

Analytical results indicate that No Further Accelerated Action (NFAA) for IHSS Group 600-6 is warranted for the following reasons:

- All contaminant concentrations are less than RFCA Wildlife Refuge Worker (WRW) action levels (ALs).
- All contaminant concentrations are less than Ecological Receptor ALs.
- There is no identified potential to exceed surface water standards at a POC from this IHSS Group.

A subsurface soil risk screen is not required because this PAC was the result of an isolated surface soil spill and subsurface soil was not evaluated. In addition, a comparison table of the analytical results to the WRW and Ecological Receptor ALs is not included because all of the results are non-detect.

Approval of this Data Summary Report constitutes regulatory agency concurrence of this IHSS Group as an NFAA. This information and NFAA determination will be documented in the FY03 Historical Release Report (HRR).

Table 1
IHSS Group 600-6 – Characterization Sampling Specifications

| IHSS Group | IHSS/PAC/UBC Site | Location Code | Easting | Northing | Media | Depth Interval | Analyte | Lab Method |
|------------|--|---------------|------------|-----------|--------------|----------------|-----------------------|--------------|
| 600-6 | PAC 600-1005 – Former Pesticide Storage Area | CD35-A001 | 2083426.50 | 748490.04 | surface soil | A | Pesticides/Herbicides | SW-846 8151A |
| | | CD35-A002 | 2083422.16 | 748484.70 | surface soil | A | Pesticides/Herbicides | SW-846 8151A |

Table 2
IHSS 600-6 - Summary of Analytical Results

| Analyte | Total Number Samples Collected | Samples above Detection Limit | Detection Frequency (%) | Maximum Concentration | Average Concentration | Tier I Action Level | Tier II Action Level | Background Mean $\pm 2SD$ | Unit |
|--|--------------------------------------|-------------------------------------|-------------------------------|--------------------------|--------------------------|------------------------|-------------------------|------------------------------|-------|
| 2,2-Dichloropropanoic Acid | 2 | 0 | 0 | 43 | 43 | NA | NA | NA | ug/kg |
| 2,4,5-Trichlorophenoxyacetic Acid | 2 | 0 | 0 | 22 | 21.5 | NA | NA | NA | ug/kg |
| 2,4-DB | 2 | 0 | 0 | 87 | 86 | NA | NA | NA | ug/kg |
| 2,4-Dichlorophenoxyacetic Acid, Salts And Esters | 2 | 0 | 0 | 87 | 86 | NA | NA | NA | ug/kg |
| Dicamba | 2 | 0 | 0 | 43 | 43 | NA | NA | NA | ug/kg |
| Dichlorprop | 2 | 0 | 0 | 87 | 86 | NA | NA | NA | ug/kg |
| MCPA | 2 | 0 | 0 | 8700 | 8600 | NA | NA | NA | ug/kg |
| MCPP | 2 | 0 | 0 | 8700 | 8600 | NA | NA | NA | ug/kg |
| Phenol, 2-(1-Methylpropyl)-4,6-Dinitro- | 2 | 0 | 0 | 13 | 13 | NA | NA | NA | ug/kg |
| Propanoic Acid, 2-(2,4,5-Trichlorophenoxy) | 2 | 0 | 0 | 22 | 21.5 | NA | NA | NA | ug/kg |
| 4,4'-DDD | 2 | 0 | 0 | 18 | 9.9 | 1,870,000 | 18,700 | NA | ug/kg |
| 4,4'-DDE | 2 | 0 | 0 | 18 | 9.9 | 1,320,000 | 13,200 | NA | ug/kg |
| 4,4'-DDT | 2 | 0 | 0 | 18 | 9.9 | 1,320,000 | 13,200 | NA | ug/kg |
| Aldrin | 2 | 0 | 0 | 18 | 9.9 | 26,400 | 264 | NA | ug/kg |
| Alpha-BHC | 2 | 0 | 0 | 18 | 9.9 | 71,100 | 711 | NA | ug/kg |
| Azinphos-Methyl | 2 | 0 | 0 | 890 | 490 | NA | NA | NA | ug/kg |
| Beta-BHC | 2 | 0 | 0 | 18 | 9.9 | 249,000 | 2,490 | NA | ug/kg |
| Bolstar (Sulprofos) | 2 | 0 | 0 | 180 | 99 | NA | NA | NA | ug/kg |
| Chlordane (Technical) | 2 | 0 | 0 | 180 | 99 | NA | NA | NA | ug/kg |
| Chlorpyrifos | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Coumaphos | 2 | 0 | 0 | 180 | 99 | NA | NA | NA | ug/kg |
| Delta-BHC | 2 | 0 | 0 | 18 | 9.9 | NA | NA | NA | ug/kg |
| Demeton (O,S Total) | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Diazinon | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Dichlorovos | 2 | 0 | 0 | 180 | 99 | NA | NA | NA | ug/kg |
| Dieldrin | 2 | 0 | 0 | 18 | 9.9 | 28,000 | 280 | NA | ug/kg |
| Dimethoate | 2 | 0 | 0 | 180 | 99 | NA | NA | NA | ug/kg |
| Disulfoton | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Endosulfan I | 2 | 0 | 0 | 18 | 9.9 | 1,000,000,000 | 11,500,000 | NA | ug/kg |
| Endosulfan II | 2 | 0 | 0 | 18 | 9.9 | 1,000,000,000 | 11,500,000 | NA | ug/kg |

Table 2
IHSS 600-6 - Summary of Analytical Results

| Analyte | Total Number Samples Collected | Samples above Detection Limit | Detection Frequency (%) | Maximum Concentration | Average Concentration | Tier I Action Level | Tier II Action Level | Background Mean +2SD | Unit |
|---------------------------------|--------------------------------------|-------------------------------------|-------------------------------|--------------------------|--------------------------|------------------------|-------------------------|-------------------------|-------|
| Endosulfan Sulfate | 2 | 0 | 0 | 18 | 9.9 | 1,000,000,000 | 11,500,000 | NA | ug/kg |
| Endrin | 2 | 0 | 0 | 18 | 9.9 | 2,300,000 | 576,000 | NA | ug/kg |
| Endrin Aldehyde | 2 | 0 | 0 | 18 | 9.9 | NA | NA | NA | ug/kg |
| Ethoprop | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Famphur | 2 | 0 | 0 | 350 | 193 | NA | NA | NA | ug/kg |
| Fensulfothion | 2 | 0 | 0 | 320 | 176.5 | NA | NA | NA | ug/kg |
| Fenthion | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Gamma-BHC [Lindane] | 2 | 0 | 0 | 18 | 9.9 | 345,000 | 3,450 | NA | ug/kg |
| Heptachlor | 2 | 0 | 0 | 18 | 9.9 | 99,600 | 996 | NA | ug/kg |
| Heptachlor Epoxide | 2 | 0 | 0 | 72 | 39.65 | 49,300 | 493 | NA | ug/kg |
| Malathion | 2 | 0 | 0 | 210 | 116 | NA | NA | NA | ug/kg |
| Merphos | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Methoxychlor | 2 | 0 | 0 | 35 | 19.3 | 9,610,000 | 9,610,000 | NA | ug/kg |
| Mevinphos | 2 | 0 | 0 | 320 | 176.5 | NA | NA | NA | ug/kg |
| Naled | 2 | 0 | 0 | 2700 | 1485 | NA | NA | NA | ug/kg |
| 0,0,0-Triethyl Phosphorothioate | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Parathion, Ethyl | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Parathion, Methyl | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Phorate | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Ronnel | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Sulfotep | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Tetrachlorovinphos (Stirophos) | 2 | 0 | 0 | 320 | 176.5 | NA | NA | NA | ug/kg |
| Tetrachlorovinphos (Rabon; Stir | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Thionazin | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Tokuthion (Protothiofos) | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |
| Toxaphene | 2 | 0 | 0 | 1800 | 990 | 407,000 | 4,070 | NA | ug/kg |
| Trichloronate | 2 | 0 | 0 | 89 | 49 | NA | NA | NA | ug/kg |

3.0 DATA QUALITY ASSESSMENT

The Data Quality Objectives (DQOs) for this project are described in the IASAP (DOE 2002). All DQOs for this project were achieved based on the following:

- Regulatory agency approved sampling program design (IASAP Addendum #IA-02-01[DOE 2002]);
- Collection of samples in accordance with the sampling design;
- Results of the Data Quality Assessment as described in the following sections.

3.1 Data Quality Assessment Process

The DQA process ensures that the type, quantity, and quality of environmental data used in decision making are defensible and is based on the following guidance and requirements:

- EPA QA/G-4, 1994a, Guidance for the Data Quality Objective Process;
- EPA QA/G-9, 1998, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis; and
- DOE Order 414.1A, 1999, Quality Assurance.

Verification and validation (V&V) of the data are the primary components of the DQA. The final data are compared with original project DQOs and evaluated with respect to project decisions; uncertainty within the decisions; and quality criteria required for the data, specifically precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Validation criteria are consistent with the following RFETS-specific documents and industry guidelines:

- EPA 540/R-94/012, 1994b, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review;
- EPA 540/R-94/013, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review; and
- Kaiser-Hill Company, L.L.C.(K-H) V&V Guidelines:
- General Guidelines for Data Verification and Validation, DA-GR01-v1, 1997a.
- V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v1, 1998.
- V&V Guidelines for Volatile Organics, DA-SS01-v1, 1997b.
- V&V Guidelines for Semivolatile Organics, DA-SS02-v1, 1997c.
- V&V Guidelines for Metals, DA-SS05-v1, 1997d.

- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

This report will be submitted to the Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) Administrative Record (AR) for permanent storage 30 days after being provided to the Colorado Department of Public Health and Environmental (CDPHE) and/or the U.S. Environmental Protection Agency (EPA).

3.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the data relative to project goals are delineated and the associated data are qualified accordingly. The V&V process defines the criteria that constitute data quality, namely PARCCS parameters. Data traceability and archival are also addressed. V&V criteria include the following:

- Chain-of-custody;
- Preservation and hold-times;
- Instrument calibrations;
- Preparation blanks;
- Interference check samples (metals);
- Matrix spikes/matrix spike duplicates (MS/MSD);
- Laboratory control samples (LCS);
- Field duplicate measurements;
- Chemical yield (radiochemistry);
- Required quantitation limits/minimum detectable activities (sensitivity of chemical and radiochemical measurements, respectively); and
- Sample analysis and preparation methods.

Evaluation of V&V criteria ensures that PARCCS parameters are satisfactory (i.e., within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation “flags” or qualifiers to individual records.

Raw hardcopy data (e.g., individual analytical data packages) are currently filed by RIN and are maintained by Kaiser-Hill Analytical Services Division (K-H ASD); older hardcopies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in the RFETS Soil and Water Database (SWD).

3.2.1 Accuracy

The following measures of accuracy were evaluated.

- Laboratory Control Sample Evaluation;
- Surrogate Evaluation;
- Field Blanks; and
- Sample Matrix Spike Evaluation.

Results are compared to method requirements and project goals. The results of these comparisons are summarized where the result could impact project decisions. Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

Laboratory Control Sample Evaluation

The frequency of Laboratory Control Sample (LCS) measurements, relative to each laboratory batch, is given in Table 3. LCS frequency was adequate based on at least one LCS per batch. The minimum and maximum LCS results are also tabulated, by chemical, for the entire project. Any qualifications of results due to LCS performance exceeding upper or lower tolerance limits are captured in the V&V flags, described in the Completeness Section. All LCS recoveries are within tolerance limits.

Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 4. Surrogate frequency was adequate based on at least one set per sample. The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project. Any qualifications of results due to surrogate performance exceeding upper or lower tolerance limits are captured in the V&V flags described in the Completeness Section.

Field Blank Evaluation

Results of the field blank sampling and analysis are given in Tables 5 and 6. Adequate frequency of field blank evaluation is given by a 5% or greater ratio of blank samples to real samples. Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples. When the real result is less than 10 times the blank result, the real result is eliminated.

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Table 3
Laboratory Control Sample Evaluation

| CAS Number | Analyte | Result Type | Result | Unit | Test Method |
|------------|---------------------|-------------|--------|------|--------------|
| 333-41-5 | DIAZINON | LC1 | 102 | %REC | SW-846 8151A |
| 94-75-7 | 2,4,-D | LC1 | 69 | %REC | SW-846 8151A |
| 93-72-1 | 2,4,5,-TP | LC1 | 73 | %REC | SW-846 8151A |
| 93-76-5 | 2,4,5-T | LC1 | 74 | %REC | SW-846 8151A |
| 58-89-9 | GAMMA-BHC (LINDANE) | LC1 | 85 | %REC | SW-846 8151A |
| 309-00-2 | ALDRIN | LC1 | 87 | %REC | SW-846 8151A |
| 298-00-0 | METHYL PARATHION | LC1 | 88 | %REC | SW-846 8151A |
| 76-44-8 | HEPTACHLOR | LC1 | 89 | %REC | SW-846 8151A |
| 8065-48-3 | DEMETON (O,S TOTAL) | LC1 | 91 | %REC | SW-846 8151A |
| 56-38-2 | PARATHION | LC1 | 91 | %REC | SW-846 8151A |
| 60-57-1 | DIELDRIN | LC1 | 91 | %REC | SW-846 8151A |
| 50-29-3 | 4,4'-DDT | LC1 | 91 | %REC | SW-846 8151A |
| 72-20-8 | ENDRIN | LC1 | 92 | %REC | SW-846 8151A |
| 121-75-5 | MALATHION | LC1 | 94 | %REC | SW-846 8151A |
| 298-02-2 | PHORATE | LC1 | 96 | %REC | SW-846 8151A |

Table 4
Surrogate Recovery Summary

| Surrogate Recoveries | | | | |
|----------------------|---------|---------|---------|-----------|
| Number of Samples | Analyte | Minimum | Maximum | Unit Code |
| None | | | | |

Table 5
Sample Frequency

| Test Method Name | Sample QC Code | Number of Samples |
|------------------|----------------|-------------------|
| SW-846 8151A | DUP | 1 |
| SW-846 8151A | REAL | 2 |

Table 6
Field Blank Summary

| Analyte | Maximum Detected | Unit |
|--------------------------------|------------------|-------|
| 2,4,5,-TP | 22 | UG/KG |
| 2,4,5-T | 22 | UG/KG |
| 2,4,-D | 86 | UG/KG |
| 2,4-DB | 86 | UG/KG |
| DALAPON | 43 | UG/KG |
| DICAMBA | 43 | UG/KG |
| DICHLORO-ACETIC ACID (DCAA) (S | 68 | %REC |

| Analyte | Maximum Detected | Unit |
|--------------|------------------|-------|
| DICHLOROPROP | 86 | UG/KG |
| DINOSEB | 13 | UG/KG |
| MCPA | 8600 | UG/KG |
| MCPD | 8600 | UG/KG |

Sample Matrix Spike Evaluation

The frequency of MS measurements, relative to each lab batch, is given in Table 7. MS frequency was adequate based on at least one MS per batch. The minimum and maximum of MS results are also tabulated, by chemical, for the entire project. Any qualifications of results due to MS performance are captured in the V&V flags as described in the Completeness Section. All MS recoveries were within tolerance limits.

Table 7
Sample Matrix Spike Evaluation

| CAS Number | Analyte | Result Type | No. LAB Batch ID | No. Samples | Result | Unit |
|------------|---------------------|-------------|------------------|-------------|--------|------|
| 93-72-1 | 2,4,5,-TP | MS1 | 1 | 1 | 94 | %REC |
| 93-76-5 | 2,4,5-T | MS1 | 1 | 1 | 75 | %REC |
| 94-75-7 | 2,4,-D | MS1 | 1 | 1 | 71 | %REC |
| 8065-48-3 | DEMETON (O,S TOTAL) | MS1 | 1 | 1 | 97 | %REC |
| 333-41-5 | DIAZINON | MS1 | 1 | 1 | 97 | %REC |
| 121-75-5 | MALATHION | MS1 | 1 | 1 | 90 | %REC |
| 298-00-0 | METHYL PARATHION | MS1 | 1 | 1 | 86 | %REC |
| 56-38-2 | PARATHION | MS1 | 1 | 1 | 90 | %REC |
| 298-02-2 | PHORATE | MS1 | 1 | 1 | 93 | %REC |

3.2.2 Precision

Matrix Spike Duplicate Evaluation

Laboratory precision is measured through use of MSD. Adequate frequency of MSD measurements is indicated by at least one MSD in each lab batch; Table 8 indicates that MSD frequencies were adequate. Any qualifications of results due to MSD performance exceeding upper tolerance limits are captured in the V&V flags as described in the Completeness Section.

Table 8
Sample Matrix Spike Duplicate Evaluation

| Analyte Name | Result | Unit |
|---------------------|--------|------|
| 2,4,5,-TP | 84 | %REC |
| 2,4,5-T | 68 | %REC |
| 2,4,-D | 64 | %REC |
| DEMETON (O,S TOTAL) | 97 | %REC |
| DIAZINON | 96 | %REC |
| MALATHION | 88 | %REC |
| METHYL PARATHION | 84 | %REC |
| PARATHION | 88 | %REC |
| PHORATE | 94 | %REC |

Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process. The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent. Sampling frequencies were adequate for all analytical suites. A common metric for evaluating precision is the relative percent difference (RPD) value; RPD values are given in Table 9. Ideally, RPDs of less than 35 percent (in soils) indicate satisfactory precision. Values exceeding 35 percent only affect project decisions if the imprecision is great enough to cause contradictory decisions relative to the COC (i.e., one sample indicates clean soil whereas the QC partner does not). As indicated by the data in Table 9, there are no analytes with RPDs greater than 35 percent.

Table 9
RPD Evaluation

| Analyte | Maximum of RPD |
|---------------------|----------------|
| 2,4,5,-TP | 11% |
| 2,4,5-T | 10% |
| 2,4,-D | 10% |
| DEMETON (O,S TOTAL) | 0% |
| DIAZINON | 1% |
| MALATHION | 2% |
| METHYL PARATHION | 2% |
| PARATHION | 2% |
| PHORATE | 1% |

Completeness

A total of 2 samples were collected and analyzed for pesticides in accordance with the IASAP (DOE 2001) and IASAP Addendum #IA-02-01 (DOE 2002). There were no deviations from the IASAP Addendum.

Based on original project DQOs, a minimum of 25 percent of ER Program analytical (and radiological) results must be formally verified and validated. Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical lab practices are consistent with quality requirements. Table 10 shows the number and percentage of validated records (codes without "1"), the number and percentage of verified records, and the percentage of rejected records for each analyte group. Eighty-three percent of the data was validated. These data indicate the frequency of V&V and rejection rates are within quality requirements.

Table 10
Validation and Verification Summary

| Validation Code | Number of Records | Solid |
|------------------------|--------------------------|--------------|
| Null | 6 | 6 |
| V | 30 | 30 |
| Total | 36 | 36 |
| Total Validated | 30 | 30 |
| % Validated | 83.33% | 83.33% |
| Total Verified | 30 | 30 |
| % Verified | 83% | 83% |
| % Rejected | 0% | 0% |

KEY:

V = Validated

3.2.3 Sensitivity

Reporting limits, in units of ug/kg for organics, mg/kg for metals, and pCi/g for radionuclides, were compared with RFCA Tier I and Tier II ALs and RFCA WRW and Ecological Receptor ALs. Adequate sensitivities of analytical methods were attained for all results. “Adequate” sensitivity is defined as a reporting limit (RL) less than an analyte’s associated AL, typically less than one-half the AL.

3.3 Summary of Data Quality

One field duplicate sample was collected. Results from the duplicate sample analysis are within the same range as the real samples. Additionally, laboratory quality control data indicate that analyses were within tolerance limits. Data collected and used for IHSS Group 600-6 is adequate for decision-making.

4.0 REFERENCES

DOE, 1994, Historical Release Report, Seventh Quarterly Update, January 1 to March 31.

DOE, 1999, DOE Order 414.1A, Quality Assurance.

DOE, 2001a, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 2001b, Industrial Area Sampling and Analysis Plan Addendum #IA-02-01, Rocky Flats Environmental Technology Site, Golden, Colorado, November.

EPA QA/G-4, 1994, Guidance for the Data Quality Objective Process.

EPA QA/G-9, 1998, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis.

Kaiser-Hill (K-H), 1997a, General Guidelines for Data Verification and Validation, DA-GR01-v1, December.

K-H, 1997b, V&V Guidelines for Volatile Organics, DA-SS01-v1, December.

K-H, 1997c, V&V Guidelines for Semivolatile Organics, DA-SS02-v1, December.

Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

ENCLOSURE

(compact disc)

**IHSS GROUP 600-6
REAL AND QC DATA**

Figure 1
IA Group Location Map

EXPLANATION
IHSS Grouping

Standard Map Features

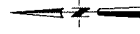
- Buildings and other structures
- Demolished buildings
- Solar Evaporation Ponds (SEPs)

- Lakes and ponds
- Streams, ditches, or other drainage features

- Fences and other barriers
- Paved roads
- Dirt roads

- Industrial Area Operable Unit Boundary

DATA SOURCE BASE FEATURES:
PACs
Historical Aerial Photograph (HAP)
Sept. 30, 1987
Individual Hazardous Substances Site (IHSS)
EIS, 1992, HAP Report and Subsequent Update
The map shows the location of the IHSS site and other structures from 1987 and fly-over data captured by EGIS 1992, Las Vegas.
Digitized from the original photograph, 1995



Scale = 1 : 6330
1 inch represents approximately 628 feet



State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

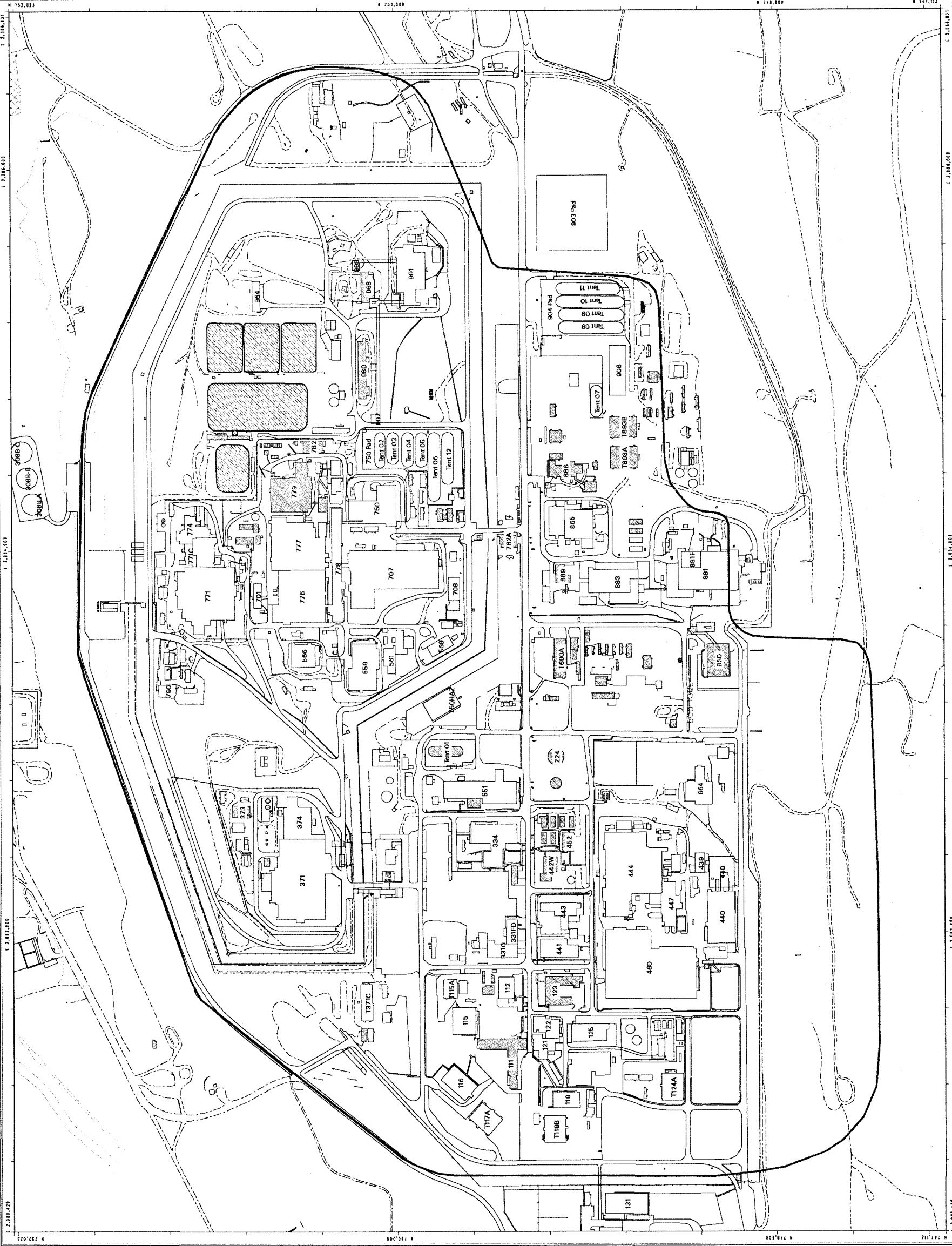
GIS Dept. 805.866.7707

Prepared for:

DynCorp
THE ART OF TECHNOLOGY



September 24, 2002



[illegible]

File: w:/projects/fy2002/600-6char.apr